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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,668	10/16/2000	Richard Ian Laming	DYOUNG0203US	3601

7590 11/15/2002
Don W. Bulson, Esq.
Renner, Otto, Boisselle & Sklar, P.L.L.
19th Floor
1621 Euclid Ave.
Cleveland, OH 44115

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

TC-14

Office Action Summary

Application N .

09/688,668

Applicant(s)

LAMING ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13. 6) ☐ Other: _____

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1. The response provided by the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed. The restriction of the previous office action is incorporated into this action here. The declaration submitted by the applicant complete the record. The UK patent application was not received and is not of record.

2. Applicant's election of group I in Paper No. 11 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 12-26 are withdrawn from prosecution.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3,5-6 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) (1/1997) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997), in view of Erdogan, et al., "Characterization of

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UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers”, JOSA B Vol. 11(10), pp. 2100-2105 (10/1994).

Storoy et al. “Single Polarization Fibre DFB Laser”, Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) teaches the formation of a single polarization DFB laser in a Er doped fiber. These are desirable for coherent communication, spectroscopy and as a reference source as the output is a single frequency (page 57, top left paragraph) The single polarization is the result of induced birefringence in the grating recorded in the fiber. The birefringence is described as being dependent upon the polarization of the UV writing beam. The birefringence is 5% for the s-polarization, which is perpendicular to the axis of the fiber. Conventionally, the gratings are written using p-polarization, which results in only 0.5% birefringence. The technique for writing the gratings is described with respect to reference [4], which is Erdogan, et al.,

“Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers”, JOSA B Vol. 11(10), pp. 2100-2105 (10/1994). (page 57/ left column, second paragraph). The exposure, followed by the tuning of the space between the two gratings for a specific phase shift using UV exposure is disclosed. (page 57/ left column, third paragraph)

Erdogan, et al., “Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers”, JOSA B Vol. 11(10), pp. 2100-2105 (10/1994) teaches the induced birefringence of in optical fibers where the s polarization is defined as where the polarization of the incident UV beam is perpendicular to the axis of the fiber. (pages 2102, left column, experimental section).

The examiner holds that either Storoy et al. “Single Polarization Fibre DFB Laser”, Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) used the methods of Erdogan, et al.,

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“Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers”, JOSA B Vol. 11(10), pp. 2100-2105 (10/1994) which are specifically referred to in the paper and the invention is anticipated or alternatively it would have been obvious to use modify the process of Storoy et al. “Single Polarization Fibre DFB Laser”, Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) used to form the DFB laser by using the methods of Erdogan, et al.,

“Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers”, JOSA B Vol. 11(10), pp. 2100-2105 (10/1994) based upon the direction to do so.

The applicant argues that the claimed process is to a one step process for forming single mode fiber laser. The examiner notes that the use of "comprising" language opens the interpretation of the claims to additional steps. The examiner notes that there is a difference between the two beam recording methods of Erdogan, et al. and Storoy et al. and the single beam grating used in the disclosure with respect to figure 3a. The examiner notes that the use of two s-polarized beams inherently would be expected to produce equal phase shifts for the modes based upon the use of the proper polarization being maintained in the s-polarization **for at least the intermediate article** (before the phase adjusting step). **The applicant might have some evidence that indicates that the two different techniques yield different results. The record of the prior art teaches them to be equivalent. (Byron '442 in column 1)** The examiner notes that there is no requirement for a DFR structure to be formed in the claims. The examiner adopts the position that the phase shift of the two different polarizations is arbitrary based upon the amount of exposure, but equal for both polarizations. The examiner notes that the birefringence is only measured at a single polarization and therefore the reference does not teach away as

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argued. The position that Erdogan, et al. is not combinable with Storoy et al. ignores the fact that the specific methods is described with reference to Erdogan, et al. The rejection stands.

6. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) **alone or combined with** Erdogan, et al., "Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers", JOSA B Vol. 11(10), pp. 2100-2105 (10/1994) as discussed above, in view of Byron '442.

Byron '442 teaches the writing of gratings while applying strain to the fiber. This allows a uniform period grating mask to be used to record chirped gratings (abstract, columns 2-3). The varying of the tension in either stepwise or continuous manner is described (3/1-3). The use of a frequency doubled argon ion laser with an output of 244 nm is disclosed as useful for writing the gratings. (3/25-31)

In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the invention of Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) **alone or combined with** Erdogan, et al., "Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers", JOSA B Vol. 11(10), pp. 2100-2105 (10/1994) as discussed above by using the 244 nm output of the frequency doubled Argon ion and/or placing strain on the fiber during grating recording as taught by Byron '442 based upon equivalent function for the laser wavelength choice and to form chirped gratings using a uniform period grating mask.

The rejection stands for the reasons above.

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7. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) **alone or combined with** Erdogan, et al., "Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers", JOSA B Vol. 11(10), pp. 2100-2105 (10/1994), in view of Byron '442 as discussed above and further in view of Dong et al. '197.

Dong et al. '197 describes Yb/Er doped fibers as more desirable due to their 100 fold larger absorption over Er only systems. (2/1-10)

In addition to the basis provided above, the examiner holds that it would have been obvious to one skilled in the art to modify the invention of Storoy et al. "Single Polarization Fibre DFB Laser", Electron. Lett., Vol. 33(1) pp. 56-58 (1/1997) **alone or combined with** Erdogan, et al., "Characterization of UV-Induced Birefringence in Photosensitive Ge-Doped Silica Optical Fibers", JOSA B Vol. 11(10), pp. 2100-2105 (10/1994), in view of Byron '442 by using the more sensitive Yb/Er fibers based upon the disclosure by Dong et al. '197 that they have a higher absorption.

The rejection stands for the reasons above.

8 THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

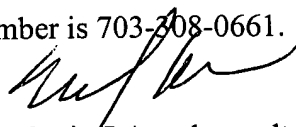
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt
Primary Examiner
Art Unit 1756

November 12, 2002